## REMARKS

Applicants have amended the specification at page 10 to state that the test flow rate of the Example is 100 ml/min so that the Example is consistent with filtration protocol described at page 9. The pending claims are 12 to 31, of which claims 12, 17, and 24 are independent claims. Applicants have cancelled claims 1 to 11 herein without prejudice. Applicants have amended claim 12 to distinguish over US patent no. 3,770,625 to Wallis. Applicants have added new claims 17 to 29 to claim other aspects of Applicants' invention. Each of these amendments is fully supported by the specification, claims, and drawings as originally filed and no new matter is believed or intended to be involved. These changes are shown in the attached page entitled "**Version with markings to show changes made**", wherein deleted text is shown between brackets and added text has been underlined.

### I. Rejections Under 35 USC § 102

The Examiner rejected cancelled claims 1 to 6 under 35 USC § 102, contending that these claims were anticipated by the Wallis patent. As understood, the Wallis patent teaches activated carbon that is treated with sodium containing a hydrolyzing composition, such as sodium hydroxide. It is unclear from the specification how sodium hydroxide might affect the virus removal capability of the activated carbon, although it is believed that either the sodium hydroxide is adsorbed into the carbon pores and inactivates the viruses or the sodium hydroxide reacts with some of the functional groups of the activated carbon (e.g., -COOH groups might be converted to –COONa groups) resulting in more efficacious attraction of viruses to the activated carbon. In either case, the virus removal capability of the activated carbon is not achieved by the interstitial spacing of the activated carbon particles but through chemical modification. In contrast, Applicants teach at pages 5 and 6 of the specification that it is the interstitial spacing of the activated carbon particles that is important. If the spacing is too narrow, fluid shear forces within the interstitial spaces might dislodge the viruses. If the spacing is too large, the viruses may not come close enough to the particles so that the electrostatic, van der Walls, and hydrophobic forces can cause attachment to the particle surface.

Applicants' independent claims 12 and 17 recite an interstitial spacing that causes a high removal of viruses at a test flow rate and influent condition. This combination of claim elements is not taught or suggested by Wallis. Likewise, Wallis does not teach or suggest compression of activated carbon particles into a filter to achieve an interstitial spacing that results in Applicants' claimed virus removal index as set forth in claim 24.

## VERSION WITH MARKINGS TO SHOW CHANGES MADE

Please replace the paragraphs beginning at page 10, lines 9 and 24, with the following rewritten paragraphs:

One hundred liters of water to be used as influent is dechlorinated and sterilized and stored in a 30 gallon carboy set on top of a stirring plate. The MS-2 bacteriophage (ATCC# 15597B) is seeded into the influent as the influent is mixed with a 2 in. by ½ in. stir bar stirred by the stirring plate set on maximum speed. The target concentration in the influent, based on the dilution from a concentrated stock, is $5x10^8$ MS-2 bacteriophages per liter. A 50 ml sample of influent is collected into a 50 ml graduated conical centrifuge tube for assay of MS-2. Once the seeded influent water is passed through the test unit for 1 hour at the prescribed flow rate (i.e., [1.1 L] 100 ml/min), 50 ml of effluent is collected into a 50 ml graduated conical centrifuge tube for assay of MS-2 bacteriophage. One ml of influent and effluent is needed to perform an assay of MS2 bacteriophage. Seeded influent water is pumped at the prescribed flow rate (i.e., [1.1 L] 100 ml/min) through the test units until the next sampling time point. An adjacent 30 gallon carboy is filled with seeded MS-2 bacteriophages as previously described. The Pharmed tubing used to draw the influent from the carboy is transferred to the adjacent carboy when only 10 L of influent remain in the original 30 gallon carboy.

Effluent is then collected at each sampling time point (i.e., 1, 6 and 10 hours) at the volumes previously described to assay the MS-2 bacteriophages according to Section IV-B. As a result, a VRI of 99.9999% is obtained at [1.1 L] 100ml/min [after] at 10 hours. The test units are un-clamped from the testing stand and disconnected from the Pharmed tubing after the last sampling time point is reached (i.e., 10 hours). The test units are then autoclaved after the analysis is completed.

Claims 1 to 11 have been cancelled without prejudice.
Claims 12, 13, and 14 have been amended as follows:

12. (Amended) An article of manufacture, comprising:
    (a) a filter [comprising activated carbon particles, wherein said filter has a VRI of at least about 99.99%; and], including:
        i) housing;

ii) a filter core disposed within said filter housing consisting essentially of particles selected from the group of activated carbon particles and a mixture of activated carbon particles and non-carbonaeous particles;

iii) wherein said carbon particles have an interparticle spacing whereby the filter has a VRI of at least about 99.99% at a flow rate of 100 ml/min. at 1 hour at an influent concentration of 5 x $10^8$ MS-2 bacteriophages per liter; and

(b) information which communicates to a user that the filter may be used to remove nano-sized pathogents from a liquid.

13. (Amended) The article of claim 12, wherein [the] said filter has a VRI of at least about 99.999% at a flow rate of 100ml/min. at 6 hours at an influent concentration of 5 x $10^8$ MS-2 bacteriophages per liter.

14. (Amended) The article of claim [13] 12, wherein [the] said filter has a VRI of at least about 99.9999% at a flow rate of 100 ml/min. at 10 hours at an influent concentration of 5 x $10^8$ MS-2 bacteriophages per liter.

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